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APPLICATION NO.	FLILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,301	01/07/2002	Yukinobu Yamazaki	020001	5983

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[REDACTED] EXAMINER

HUG, ERIC J

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1731

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/019,301	YAMAZAKI ET AL.
	Examiner	Art Unit
	Eric Hug	1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 21 May 2003.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-13, 15, 17, 19 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13, 17 and 21-27 is/are rejected.
- 7) Claim(s) 15 and 19 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Response to Amendment*

The following is in response to the amendment filed on May 21, 2003.

### *Claim Rejections - 35 USC § 102*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1, 4-7, 12, 13, 17, 21, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigemoto (US 5,106,692). Shigemoto discloses a laminate comprising a resin interlayer (layer B) made of 40-98% polyolefin, 0.1-20% of a carboxylic acid modified polyolefin, and 1-50% of a tackifier. The three components and proportions of the components read on claims 1. The acid modified polyolefin reads on claims 7 and 23. The polyolefin is an ethylene/alpha-olefin random copolymer, and can be an ethylene-propylene copolymer (column 2, lines 48-52), which reads on claim 4. Suitable tackifiers are given in column 3, lines 39-58, and read on the types given by claims 5 and 6. The combination of the three components, the proportions of the components, and the types of suitable tackifiers reads on claim 21. The interlayer of the laminate provides gas-barrier properties when applied to substrates such as paper (column 6, lines 1-2), which reads on claim 12 and 17. The laminate can be used in food packaging (column 6, lines 23-26), which reads on claim 13. A thermoplastic resin layer (layer A) which can be a methacrylic resin layer is formed outside the interlayer (column 5, lines 13-24), which reads on claims 24 and 26. A 4-methyl-1-pentene polymer layer (layer C) is

applied to the paper as a sealing layer prior to the application of the interlayer, which reads on claims 25 and 27.

2. Claims 1, 4-7, 21, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Mito et al (US 6,333,119). Mito discloses an adhesive composition for paper comprising 30-80% linear polyethylene, 1-30% high pressure low-density polyethylene, 1-30% carboxylic acid modified polyethylene, and 1-30% of a tackifier. The combination of polyethylenes is component A, the tackifier is component B, and the modified polyethylene is component C. The components and the proportions read on claims 1, 7, 21, and 23. The linear polyethylene may be a copolymer formed with propylene (column 2, lines 17-25), which reads on claim 4. The tackifiers are given in column 3, lines 20-41, which read on claims 5 and 6.

3. Claims 1, 3-7, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Jarvis et al (US 5,441,999). Jarvis discloses a hot melt adhesive for paper comprising a polyolefin (40-70% olefin terpolymer), an olefin-carboxylic acid copolymer or olefin-maleic acid copolymer (5-20% of either or a blend), and a tackifying resin (10-40%). The materials and proportions read on claims 1, 7, 21, and 23. The polyolefin may include atactic polypropylene (see Example 3), which reads on claims 3 and 4. Suitable tackifiers are given starting on column 1, line 58, which read on claims 5 and 6.

4. Claims 1, 2, 4-9, 12, 13, 17, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirakura et al (US 5,466,519). Shirakura discloses a waterproof resin for forming coating layers onto a paper substrate. The resin comprises a polyolefin, a tackifying

resin, and optionally an adhesive resin which may be an acid-modified polyolefin. Titanium dioxide, talc, kaolin, or calcium carbonate may also be added. The composition reads on the claims as follows:

Claim 1: The polyolefin comprises 40-99.5% of the composition. The tackifier is 0.5-60% of the composition. When adhesive resin is present, it is in the amount of 5-500% of the resin. Thus, it is possible to have a composition with all three components present in quantities within the claimed amounts.

Claims 2, 22: The composition can comprise up 5-60% titanium dioxide (column 4, lines 62-65) or up to 30% talc, kaolin, or calcium carbonate (column 6, lines 9-29).

Claim 4: The polyolefin can comprise polypropylene (column 3, lines 39-47).

Claims 5, 6: The tackifier can be rosin or any one of the claimed resins (column 5, lines 30-51).

Claim 7: The adhesive resin can be an acid-modified polyolefin, such as an ethylene-acrylic acid copolymer (see column 5, line 52 to column 6, line 8).

Claims 8, 9: The inorganic fillers have an average particle size less than 5 microns. The titanium dioxide is 0.1-0.4 microns and the others are 0.01-1 microns.

Claims 12, 13, 17: Shirakura produces a waterproof photographic paper by applying two layers of waterproof resin to the surface of a paper substrate. The phrase "for foods" in claim 13 is a statement of intended use and does not distinguish the present invention from that of the reference.

Claims 21 and 23: See combined explanations for claims 1 and 5-7.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakura et al (US 5,466,519) in view of Morganelli (US 5,454,909) and in view of the physical properties for titanium dioxide and calcium carbonate presented in the previous office action. Shirakura discloses the waterproof resin described above. The resin can contain substantial amounts of titanium dioxide, calcium carbonate, clay, or talc. Shirakura does not disclose the density of the resin composition, thus does not disclose that the density is at least 1.0 g/cm<sup>3</sup>. In Morganelli, it is disclosed that typical polyolefin resin compositions not having any filler will have a density of about 0.92-0.95. Thus, it is expected that the unfilled resin of Shirakura will also have a density below 1.0.

The specific gravity of titanium dioxide is 3.84 for anatase and 4.26 for rutile. The specific gravity of calcium carbonate is 2.930 for natural aragonite. Since the resin compositions of Shirakura contain up to 60% titanium dioxide or up to 30% calcium carbonate, then it would be obvious to one skilled in the art that such resin compositions containing filler will have a final density greater than 1.0 g/cm<sup>3</sup>, because the density of the filler material is much greater than 1.0 g/cm<sup>3</sup>. Even for amounts of filler much less than 60% for titanium dioxide or 30% for calcium carbonate, it would be expected to have an overall density greater than 1.0 g/cm<sup>3</sup> because of the high density of the filler materials.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakura et al (US 5,466,519) in view of Gaveske (US 6,025,032). Shirakura discloses the resin described above, and specifies that a dye may be added to the resin if desired (column 9, line 1). This information is not enough to suggest that the die match the color of the paper substrate.

Gaveske discloses a waterproofing composition comprising a polyolefin polymer and a coumarone-indine resin. The coating composition may optionally include a pigment or dye (column 9, lines 23-32). The pigment or dye may impart a desired color to the coating composition or may be added for aesthetic purposes. The pigment or dye may also be included in the coating composition for determining which portion of a surface has been covered by the coating composition. Thus, Gaveske provides enough evidence to suggest that the dye can match that of a paper substrate if desired. Therefore, at the time of the invention, it would have been obvious to one skilled in the art to add a dye to the resin of Shirakura which matches the paper and hides any undesirable effects due to the presence of the waterproofing resin.

#### ***Response to Arguments***

The arguments presented in response to the previous office action that are pertinent to the above rejections are addressed below:

Applicant disagrees about the combination of Shirakura with Morganelli, because Shirakura contains lots of titanium, which is not present in the claimed invention. However, Shirakura also discloses calcium carbonate, which is present in the claimed invention. Morganelli has been cited to disclose a density of a comparable polyolefin resin that contains no

fillers, and that due to the high density of calcium carbonate, one would expect the sheet of Shirakura containing calcium carbonate to exceed a density of 1.0.

Applicants also disagrees about the combination of Shirakura with Gaveske, because Gaveske does not require a compatibilizer. However, Gaveske has been cited to exemplify that it is known to one skilled in the art to impart a dye to a resin that matches the color of the paper substrate. This would be true whether or not a resin comprises a compatibilizer, absent any evidence that the absence or presence of a compatibilizer alters the effect of the dye.

***Allowable Subject Matter***

Claims 15 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not teach inserting the resin compound between not less than two sheets to form a water-resistant paper.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Edwards et al (US 6,159,404) discloses polyethylene compositions suitable as an extrusion coating on a material substrate such as paper. The polyethylene compositions comprise a blend of ethylene polymers and a tackifying resin. The compositions can also contain polyolefin copolymers including an ethylene-acrylic acid copolymer.

Sandwick et al (US 5,587,202) discloses compositions that render paper water-resistant comprising polyolefins, acid-modified polyolefins, and fatty acids.

Noda et al (US 5,328,749) discloses a polyolefin resin coated paper. The resin comprises a combination of a polypropylene-based resin and a random polypropylene-based resin, and can also comprise an acrylic acid modified olefin polymer and/or a pigment.

Kwo et al (US 5,024,888) discloses hot melt adhesive films that are blends of polybutylene, maleic anhydride modified polybutylene, polyethylene, and/or polyethylene vinyl acetate, and a tackifying resin.

Kato et al (US 4,362,784) discloses a resin for a food packing material comprising an ethylene-vinyl copolymer, a carboxylic acid modified polyolefin, and a tackifying agent.

Sugimoto et al (US 4,087,505) discloses a tacky polyolefin film that has water resistance. The film comprises a high grade polyolefin resin, a low grade polyolefin, and a tackifier.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 703 308-1980. The examiner can normally be reached on Monday through Friday, 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0651.

*Eric Hug*  
jeh  
August 5, 2003

*Peter Chin*  
PETER CHIN  
PRIMARY EXAMINER